



Unfit for the future? The depoliticization of human perfectibility, from the Enlightenment to transhumanism

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Abstract

An intellectual and cultural movement advocating a radical enhancement of human performance via technoscientific and biomedical advances, transhumanism has grown in notoriety in recent years. Grouping engineers, philosophers, sociologists, and entrepreneurs, the movement and its ideals of enhanced humans have a strong social resonance, be it doping in sport, the use of smart drugs, or the biomedical battle against aging. This article sheds theoretical and critical light on transhumanism through the lens of human perfectibility. It particularly aims to show how the movement marks a significant reversal of the humanist conception of human perfectibility inherited from the Enlightenment. Far from working for the social and political emancipation of humans and the human condition, transhumanism is emblematic of a depoliticized conception of human perfectibility focused on the technoscientific adaptation of the human being. Transhumanism thus marks a major rupture with the modern democratic project of autonomy.

Keywords

autonomy, the Enlightenment, human enhancement, human perfectibility, political philosophy, transhumanism

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Changing our nature to fit the world, rather than the other way around, is actually the deepest form of disempowerment. It distracts us from reflecting critically on the world, and deadens the impulse to social and political improvement.

(Michael Sandel, 2007: 97)

The aspiration to improve the human being and its physical, intellectual, and emotional performances through technoscientific and biomedical means is confirmed daily in Western societies. The rise in gene doping in professional sport (Thompson, 2012), the misuse of medication in some educational and professional settings to sharpen concentration and attention (Levinson and McKinney, 2013), the banalization of cosmetic surgery (Brooks, 2004), and the development of regenerative medicine to counter aging (Lafontaine, 2009) are all signs of the rise of an ‘enhancement society’¹ (Coenen et al., 2009: 6). Henceforth, as sociologist Nikolas Rose points out, ‘almost any capacity of the human body or soul – strength, endurance, attention, intelligence and lifespan itself – seems potentially open to improvement by technological intervention’ (2007: 20). For the transhumanist movement, these biomedical and technoscientific interventions are only a prelude to a much greater revolution that should be encouraged, where humans will be entirely able to transcend their biological condition to access a superior state of evolution. An intellectual and cultural vein promoted by philosophers, sociologists, and engineers advocating radical technoscientific human enhancement, transhumanism has enjoyed growing notoriety for several years. Now anything but marginal, the movement fits into the broader development of a biocapitalism spearheaded by the world’s biggest economic players (like Google and Paypal) as well as an array of start-ups capitalizing on a set of technoscientific promises, such as indefinitely extending human life expectancy.

For more than a decade, transhumanism and the broader contemporary aspiration to technically enhance the human being have given rise to much debate in the social sciences, particularly in philosophy and bioethics (e.g. Buchanan et al., 2000; Parens, 2000; Bostrom and Savulescu, 2009; Giubilini and Sanyal, 2015; Clarke et al., 2016). However, with the main aim of *regulating* human enhancement (e.g. Mehlman, 2009; Buchanan, 2011), the majority of these contemporary approaches resemble a ‘risk management tool’ (De Melo-Martin, 2010: 486) more than a tool for ensuring true fundamental critical reflection. Promoting the responsible use of enhancement technologies, contributing to their free and informed use, guaranteeing the safety and health of users, and favouring equal access to these new technologies are all parameters put forward. Focused on the management of enhancement, this bioethical approach considerably neglects many of the basic concerns raised by human enhancement, starting with questions about its social relevancy and desirability (see Sandel, 2007). More than a *bioethical* issue to be managed and regulated, human enhancement is a fundamentally *political* issue – in the philosophical and basic sense of the word – that questions the values orienting collective action and establishing shared life. Therefore, even if human enhancement technologies were risk-free, fully consensual, and widely accessible, would an enhanced human being still be desirable?² In a broader sense, what social project does this transhumanist aspiration to enhance the human being propose?

This is notably the fundamental concern behind human perfectibility and its means – an issue deeply rooted in the history of philosophy and of political ideas (see Passmore, [1971] 2000) – that is asked here with acuity, and that this article intends to address with the aim of critically examining transhumanism.³ How exactly are human beings perfectible and for what purpose? From a socio-historical overview of the notion of perfectibility and the meaning it holds in Enlightenment philosophy, this article seeks to show how transhumanism and the current aspiration to human enhancement represent a major rupture. Finding support in the critical thought of political philosopher Cornélius Castoriadis, we will see that, in its journey from the Enlightenment to transhumanism, the notion of perfectibility has been particularly distorted. Though it refers to a political project and an improvement of human beings *in and by* society in the Enlightenment (proposed in particular by Jean-Jacques Rousseau), it is simplified in transhumanist rhetoric to the technoscientific adaptation of the human being and of life itself. For transhumanism, politically changing the world is no longer the question; rather, the focus is on biomedically conforming to the world and, in so doing, completely overturning the modern democratic *project of autonomy*, as philosopher Cornélius Castoriadis so defines it, that is to say, a project based on the explicit self-institution of society (see Castoriadis, 1975; 1991).

This article will first present the transhumanist ideals of human enhancement and will question the source for their ideals in Enlightenment philosophy that transhumanists often cite. In the second section, this article will examine from a historical perspective the humanist concept of human perfectibility as it is put forth by the Enlightenment to critically examine transhumanism. We will see in this respect how, though it may hold an undeniably scientific and technical dimension in Enlightenment philosophy, the idea of human perfectibility encompasses a deeper critical and political scope. In its third and last section, this article will show how transhumanism indeed conceals the reflective and critical facets of the humanist conception of human perfectibility. Proceeding to a ‘biologization’ of social issues via the idea that humans are biologically ‘unfit for the future’ (see Persson and Savulescu, 2012), transhumanist ideology replaces the Enlightenment’s aims for social and political emancipation with the goal of technoscientific and biomedical adaptation. The article will conclude by reiterating not only the importance of bringing the idea of perfectibility back to the social and the political arena, but also the necessity of rethinking this humanist ideal other than on the anthropocentric grounds of removing the human from nature, as many contemporary ecological perspectives invite.

More than human: transhumanism and the technological quest for perfection

Arising in the 1980s and taking shape mainly throughout the 1990s in the United States, transhumanism designates the intellectual and cultural movement ‘that affirms the possibility and desirability of fundamentally improving the human condition through applied reason, especially by developing and making widely available technologies to eliminate aging and to greatly enhance human intellectual, physical, and psychological capacities’ (More, 2013a: 3). Gathering several thousand members in the international association *Humanity+*, including philosophers, bioethicists, engineers, and

entrepreneurs, transhumanism and its ideals for the technoscientifically enhanced human being enjoy solid institutional support.⁴ The philosopher Nick Bostrom, an LSE graduate and the co-founder of the World Transhumanist Association, teaches at the University of Oxford, directs the influential Future of Humanity Institute, and sits on numerous bioethics committees. Supported by the US National Science Foundation, which, in 2002, published the influential report, *Converging Technologies for Improving Human Performance* (Roco and Bainbridge, 2002), transhumanist ideals are also on the agenda of economic giants like Google. Created in 2013 in the Google X Lab, the biotechnology company Calico (California Life Company) is mandated with developing in-depth knowledge of the biological characteristics of aging to indefinitely prolong human life expectancy: 'We will use that knowledge to devise interventions that enable people to lead longer and healthier lives. We're tackling aging, one of life's greatest mysteries' (<http://www.calicolabs.com/>). At the crossroads of business and scientific research, transhumanism is fully in keeping with contemporary biocapitalism and the quest for a biomedical optimization of human performance. As Nikolas Rose points out, the contemporary biopolitical model

is neither delimited by the poles of illness and death, nor focused on eliminating pathology to protect the destiny of the nation. Rather, it is concerned with our growing capacities to control, manage, engineer, reshape, and modulate the very vital capacities of human beings as living creatures. (2007: 3)

From the positions of the early libertarian transhumanists to the more social and progressive transhumanism promoted in recent years by several philosophers (Hughes, 2004), the movement encompasses a diversity of ideological trends. Although its political and cultural spectrum is broad, transhumanists nevertheless share the common objective of shifting from being submitted to natural evolution to a chosen technological evolution, thanks to technoscientific and biomedical advances. The transhumanists indeed seek to transcend human biological boundaries (Bailey, 2005) since, they feel, humans do not in any way have a prescribed essence: 'Transhumanism is a way of thinking about the future that is based on the premise that the human species in its current form does not represent the end of our development but rather a comparatively early phase' (Bostrom, 2003a: 4). According to philosopher John Harris, transhumanism is the human species' opportunity to access a new phase of evolution, a *post-Darwinian* stage of evolution that would no longer be governed by natural necessity but rather by technoscientific mastery: 'This new process of evolutionary change will replace natural selection with deliberate selection, Darwinian evolution with enhancement evolution' (Harris, 2007: 4). According to the principle of 'morphological freedom', claimed as 'the right to modify oneself according to one's desires' (Sandberg, 2013: 56), transhumanists hope to help individuals freely model their biology by using technosciences to liberate them from biological determinism; in other words, to allow each and every individual to become the designer of his or her own evolution (Young, 2005). It is this state of being beyond biology and its oppressive weight, summed up by the term 'posthuman', that is to say 'more than human' (Ramez, 2005), that the transhumanists seek: 'Transhumanists hope that by responsible use of science, technology, and other rational means we shall

eventually manage to become post-human, beings with vastly greater capacities than present human beings have' (Bostrom, 2003b).

These superior capacities provided by technosciences first and foremost enable a remodelling of the human body to perfect it. Countering the body's limited capacities, transhumanists call for the body to become *stronger* by developing more resistance to illness and stress, or by enhancing greater sensory acuity, even creating new senses. In short, this would be a *version 2.0* of the human body (Kurzweil, 2003), experienced most notably in the military with exoskeleton-equipped cyber-soldiers. Improving one's body also means opening up the possibility of freely determining one's gender and sexuality, as supporters of postgenderism demand (Dvorsky and Hughes, 2008). Second, transhumanists seek to use technoscientific and biomedical progress to become more intelligent. This applies as much to the use of smart drugs that optimize attention and concentration as to implanted electronic chips that sharpen intellectual aptitudes (Bostrom and Sandberg, 2006). Third, for transhumanists, technoscientific progress promises happier humans by increased pharmacological control of emotions, qualified by David Pearce as 'paradise engineering' (Pearce, 2003). These would also increase human empathy to pacify human relationships (Persson and Savulescu, 2012) or even pharmacologically optimize romantic relationships (Earp et al., 2013; 2015). Finally, transhumanists are also in favour of biotechnological control of birth through a kind of liberal eugenics (Savulescu, 2001; Agar, 2004) and the pushing back of death to live longer, even indefinitely. Seen as no less than a disease to be cured, old age is indeed the ultimate obstacle for transhumanists (Kurzweil and Grossman, 2006).

Though transhumanist ideals fit into a tradition of thought that its members trace back to the English biofuturism of the 1920s (see Hughes, 2008; Tirosh-Samuelson, 2012), the movement does like to solidly anchor its battle in human history to better legitimize it. Some thinkers, like Ray Kurzweil, do not hesitate to trace transhumanist ideals back to the deepest origins of human history. 'Expanding our potential is precisely the primary distinction of our species,' he says (Kurzweil, 2003). The most commonly defended idea, however, is that transhumanism's ideology is rooted in the eighteenth-century Enlightenment's emancipatory philosophy. For many of today's defenders of human enhancement, transhumanism is indeed anchored in the humanist tradition of thought and its ideal of human perfectibility, the intention and scope of which transhumanism only seeks to extend and develop. Philosopher James Hughes stresses this point: 'Transhumanism, the belief that science can be used to transcend the limitations of human body and brain, is an ideological descendant of the Enlightenment, a part of the family of Enlightenment philosophies' (Hughes, 2010: 622). This is also how 'The Transhumanist FAQ' presents it:

Transhumanism can be viewed as an extension of humanism, from which it is partially derived. . . . Just as we use rational means to improve the human condition and the external world, we can also use such means to improve ourselves, the human organism. In doing so, we are not limited to traditional humanistic methods, such as education and cultural development. We can also use technological means that will eventually enable us to move beyond what some would think of as 'human'. (Bostrom, 2003a: 4)

The idea that the transhumanist view of perfectibility is but a continuation or broadening of the humanist tradition of the perfectible human is also defended in the history of transhumanism as told by Nick Bostrom (2005). Through his conception of a human being as a craftsman of self and sculptor of his own nature, the emblematic figure of Renaissance humanism, Pico della Mirandola, is presented as one of the key precursors to transhumanism: ‘A landmark of the period is Giovanni Pico della Mirandola’s *Oration on the Dignity of Man* (1486), which proclaims that man does not have a ready-made form and is responsible for shaping himself’ (Bostrom, 2005: 2). Bostrom also highlights the major contribution of philosopher Immanuel Kant and of the Marquis de Condorcet, who both shook the domination of the Old Order and exalted the autonomy of the human being, for having paved the way for transhumanist ideals. Nick Bostrom openly claims that ‘[t]ranshumanism has roots in rational humanism’ (2005: 3).

But is this genealogy truly justifiable? Does it really do justice to the eighteenth-century philosophers’ view of human perfectibility? As we will now see, thought on human perfectibility and its means and goals is indeed central to Enlightenment philosophy. Driven by the aspiration for liberation from the old paradigm, in the eighteenth century, the Enlightenment thinkers clearly affirmed the indefinitely perfectible nature of the human being. And their quest for perfectibility already displayed a technoscientific dimension in which today’s transhumanism is undeniably rooted. However, the humanist idea of the perfectible human was never reduced to just this technical dimension; rather, it encompassed a much deeper meaning and social and political scope.

The humanist conception of human perfectibility in Enlightenment philosophy

After having addressed, so curiously, the means of making more beautiful and better animal races or more useful and pleasant plants; after having remodelled a hundred times over horses and dogs; after having transplanted, grafted, and worked in every possible way the fruits and the flowers, is it not shameful to have totally neglected the race of Man? It is time, in this respect as in many others, to adhere to a system of seeing things worthy of an era of regeneration: it is time to dare to do to ourselves what we have so positively done to so many of our living companions; to dare to revisit and correct the works of nature. (Cabanis, [1802] 1844: 298; translation)

‘Dare to revisit and correct the works of nature’ – we might think these words came straight from a transhumanist manifesto. Actually, these are the words of the physician and philosopher Pierre-Jean-Georges Cabanis who, in 1802, authored *On the Relations between the Physical and Moral Aspects of Man*. It would be a mistake to think this is an isolated case. The desire to perfect the human species is indeed already clearly expressed in the eighteenth century (see Winston, 2005; Martin, 2008). It stems from the Cartesian ambition to turn humans ‘into the masters and possessors of nature’. Since nature is also that of humans, it is the nature of the body that humans now sought to investigate scientifically and master technically. ‘The driving force here is that total mastery of

nature must logically end in and by Man's mastery of his own nature' (Taguieff, 2004: 241; translation).

The philosopher Sir Francis Bacon is one of the first to express this modern aspiration to perfect the human body in his famous utopian novel *The New Atlantis* (Bacon, [1624] 2000), in which he sketches a portrait of a society located on an island in the Southern oceans. Entirely devoted to science and experimentation, its ultimate goal is 'the enlarging of the bounds of Human Empire, to the effecting of all things possible' (Bacon, [1624] 2000: 119; translation). The novel ends most notably with a list of several 'natural wonders' that quite strikingly reflect contemporary transhumanist claims:

The prolongation of life; the restitution of youth in some degree; the retardation of age; the curing of diseases counted incurable; the mitigation of pain; the increasing of ability for suffering torture, or pain . . . the altering of stature; the altering of features; the increasing and exalting of intellectual parts; versions of bodies into other bodies; making of new species; transplanting of one species into another . . . force of the imagination, either upon another body, or upon the body itself; acceleration of time in maturation . . . (Bacon, [1624] 2000: 132–3; translation)

It is in the writings of the Marquis de Condorcet, however, that this modern technoscientific aspiration to perfect humans and the human body is expressed in its most conclusive form. A true philosophical hymn to progress, the *Sketch for a Historical Picture of the Progress of the Human Mind*, published in 1795, ends with the promise of humanity becoming master of its natural destiny, including its biological perfection:

[A]ccordingly, we may already conclude, that the perfectibility of man is indefinite. Meanwhile we have hitherto considered him as possessing only the same natural faculties, as endowed with the same organization. How much greater would be the certainty, how much wider the compass of our hopes, could we prove that these natural faculties themselves, that this very organization, are also susceptible of melioration? (Condorcet, [1795] 1988: 289; translation)

If improving the natural faculties reflects the desire to better control human procreation, Condorcet can be considered one of the precursors of modern eugenics (see Beijin, 1988). He is not alone. Physician Charles Augustin Vandermonde, most notably in his essay on how to perfect the human species, published in 1756, the *Essai sur la manière de perfectionner l'espèce humaine*, and philosopher Pierre-Jean-Georges Cabanis ([1802] 1844) claim they are favourable to mastering human procreation through hygienic measures intended for married couples. Improving natural faculties also means the hope of one day seeing humanity technically push back the limitation of death. This aspiration to technically amend death is formulated explicitly in Condorcet's writing:

Would it even be absurd to suppose this quality of melioration in the human species as susceptible of an indefinite advancement; to suppose that a period must one day arrive when death will be nothing more than the effect either of extraordinary accidents, or of the slow and gradual decay of the vital powers; and that the duration of the middle space, of the

interval between the birth of man and this decay, will itself have no assignable limit? (Condorcet, [1795] 1988: 290; translation)

From Bacon to Cabanis all the way to Condorcet, the attempt of technically perfecting nature – human nature included – is an integral part of the modern humanist agenda. This dimension refers to what philosopher Cornélius Castoriadis calls the ‘infinite pursuit of pseudo-rational mastery’ (1986: 197). In this respect, transhumanism is partially rooted in the humanist ideal of the perfectible Man. However, we would be wrong to reduce the humanist conception of perfectibility to this sole ambition of the technical mastering of nature. The notion holds a more fundamental meaning and greater social, and political scope. In Enlightenment philosophy, human perfectibility is also and especially a quest for politically making the world a better place that is linked to what Castoriadis identifies as the imaginary of ‘autonomy’.

We owe our thanks to Jean-Jacques Rousseau for coining the neologism ‘perfectibility’ in his famous *Discourse on the Origin and Basis of Inequality among Men* (Rousseau, [1755] 1992). As Rousseau defines it, the notion of perfectibility designates a new conception of humans and their action on the world that values their indetermination and autonomy. The notion is therefore not really a synonym of ‘perfection’ or ‘progress’. Just as euphoric as it is dysphoric, it cannot be dissociated from ‘a painful reflection on the powers of Man, his boundaries, thresholds, and limits, that are also their excesses and errors’ (Lotterie, 1998, p. 384; translation). As Rousseau points out:

It would be sad for us to be forced to agree that this distinctive and almost unlimited faculty is the source of all man’s misfortunes; that this is what, by dint of time, draws him out of that original condition in which he would pass tranquil and innocent days; that this is what, through centuries of giving rise to his enlightenment and his errors, his vices and his virtues, eventually make him a tyrant over himself and nature. (Rousseau, [1755] 1992: 183–4)

If, in his *Discourse*, Rousseau insists on the misfortunes of human perfectibility, it is not, however, to condemn all progress, but to shed light on ambiguity. By defining humans as perfectible beings, Rousseau first and foremost rejects the idea that a nature or essence, be it divine or natural, defines humans once and for all. The perfectible man, to borrow Alain Renaut’s words, ‘no longer expects nature or God to dictate his norms and laws, but rather he establishes them for himself from his own reasoning and will’ (1989: 53; translation). He is a social and historical being whose ‘ontological malleability’ confers upon him the privilege of shaping his own nature. Equipped with free will, the human being is thus the only creature capable of freely choosing its destiny, ‘unlike an animal, who, after several months, is what it will be all its life, and its species, which, after a millennium, is what it was in the first of its thousand years’ (Rousseau, [1755] 1992: 183; translation).

This social and undetermined nature that characterizes humans in Rousseau’s view, and that he grasps through the concept of perfectibility, opens a political horizon of action in the world. It is no coincidence that Rousseau shapes the notion of perfectibility in his *Second Discourse*, which is devoted to the issue of inequality and its sources. By defining humans as perfectible beings – meaning social and autonomous beings – formed

in and by society, Rousseau works to denaturalize the question of social inequalities. As Couze Venn points out: ‘Central to the politics of Enlightenment thinkers was the rejection of the deep-seated belief that inequality and poverty were inevitable and reflected the natural state of human societies’ (2006: 479). By showing that society is a human construction and not the result of divine will or nature’s hidden plan, Rousseau indeed establishes that human beings are able to build for themselves a more just and decent society. The issues of bondage and social inequality, until then examined almost exclusively in metaphysical terms, become for Rousseau solid social and political problems on which humans can henceforth take action. In other words, through the notion of human perfectibility, Rousseau contributes to denaturalizing the traditional social order and its host of inequalities and, in the same vein, applauds the human power to take political action on oneself and on the world to belie the fatalisms that power uses to assert its strength.

At the core of Enlightenment philosophy and its model of perfectibility lies the recognition of humans’ social nature and the fact that it is not true human perfectibility except *in, by, and for* society.⁵ Establishing political promise for a better world, the idea of human perfectibility indicates here a true social and political project, in which education and citizen action are key instruments. For Enlightenment thinkers, the perfectible Man is a being whose duty is first and foremost to master his own autonomy, in other words, to be able to question religious dogma and dominant social mores (see Kant, [1784] 1967). According to this meaning, the finality of human perfectibility in Enlightenment philosophy is far from being reduced to the idea of a technical mastery of nature. More fundamentally, it refers to a social and political emancipation of the human being, to founding a fully autonomous society that is the foundation for modern democratic thought, according to the principle of a reflexive self-institution of society, as described by philosopher Cornélius Castoriadis: ‘The project of autonomy is the cultural horizon of democratic institutions, inasmuch as they involve an explicit self-constitution of society’ (Arnason, 1989: 330). If technoscientific mastery can contribute to bettering human destiny, for Rousseau, and more broadly for all Enlightenment-era philosophers, it comes on the condition of remaining subordinate to more fundamental social and political imperatives. Technoscientific mastery is, in other words, embedded in the broader project of politically improving social living conditions. As we will now see, that it is precisely this social and political aspect of the humanist conception of human perfectibility that tends to be concealed in contemporary transhumanist discourses.

Transhumanism or the contemporary reversal of human perfectibility

Through the ideals of human enhancement – the perspective of a more attractive, stronger, more intelligent human – it is no longer a question of social and political improvement of the human condition (see also Winner, 2002). Quite the contrary, what prevails is an essentially depoliticized and adaptive conception of human perfectibility. The perspective adopted by transhumanism is definitely always that of technically changing humans and engineering *life itself* at a molecular level (Rose, 2001; 2007), rather than politically questioning and improving our social environment from a critical and

reflexive perspective. This reversal does not regard just libertarian transhumanism, centred on the individual and the optimization of its performance. More broadly, it looks at the transhumanist trend that has called these last years for a social and democratic approach (see Hughes, 2004; Persson and Savulescu, 2012). If it is interested, as we will see, in contemporary social and environmental problems, this so-called social transhumanism also participates in ‘depoliticizing’ human perfectibility by systematically concealing the social determinants at play in these issues. In other words, the transhumanist view of perfectibility – even by the branch of the movement that claims to be more ‘social’ and ‘progressive’ – is built on complete political disinvestment, and thus marks a reversal of the Enlightenment thinkers’ project of autonomy.

This reversal is founded first on a depreciative view of humans and the human body, through what we could call an *anthropology of deficiency*. The promotional showcase of a better performing human indeed is based on a systematic stigmatization of life and the human body (see also Hauskeller, 2016).⁶ Transhumanist thought posits that it is never our social and political environment that is maladapted or problematic; rather, it is the human beings in flesh and blood. While the humanist conception of human perfectibility contributed to ‘denaturalizing’ social problems for better political action, the transhumanist conception draws on the total ‘naturalization’ of social problems, attributing them to a ‘deficient’ human nature. This pathological view of the human as a feared and handicapped biological being is at the core of transhumanist philosopher Max More’s theory in his famous ‘letter to Mother Nature’:

Mother Nature, truly we are grateful for what you have made us. No doubt you did the best you could. However, with all due respect, we must say that you have in many ways done a poor job with the human constitution. You have made us vulnerable to disease and damage. You compel us to age and die—just as we’re beginning to attain wisdom. You were miserly in the extent to which you gave us awareness of our somatic, cognitive, and emotional processes. You held out on us by giving the sharpest senses to other animals. You made us functional only under narrow environmental conditions. You gave us limited memory, poor impulse control, and tribalistic, xenophobic urges. And, you forgot to give us the operating manual for ourselves! What you have made us is glorious, yet deeply flawed. (More, 2013b: 449)

Humans’ original handicap, therefore, is being human. Transhumanists add to this humans’ biological maladaptation to the modern world. The highly technological modern world just accentuates the downgrading of the human body and its biology. Instead of questioning our increasingly artificial lifestyles (deemed unavoidable), transhumanists incriminate the human body (seen as archaic and primitive), which they feel must necessarily be modernized. The transhumanist candidate in the 2016 US presidential elections, Zoltan Istvan, made this stigmatization of the human body the ideological basis of his political party. In an interview, he emphasized how our biology is now clearly outdated and even backwards in the modern technology-driven world:

Humans are handicapped by our biology. We operate tens of thousands of years behind evolution with our inherited instincts, which means our behavior is not suited to its current

environment. Futurists like to say evolution is always late to the dinner party. We have instincts that apply to our biology in a world that existed ages ago; not a world of skyscrapers, cell phones, jet air travel, the Internet, and CRISPR gene editing technology. (Istvan, 2016)

In his article 'Human Body Version 2.0', transhumanist Ray Kurzweil not only agrees with this assessment, he takes it a step further. Describing our society as one of material abundance, he states that the functioning of the human body, now less solicited than in the past, is counterproductive and the source of major public health issues, like diabetes and obesity:

Our digestive processes in particular are optimized for a situation that is dramatically dissimilar to the one we find ourselves in. For most of our biological heritage, there was a high likelihood that the next foraging or hunting season (and for a brief, relatively recent period, the next planning season) might be catastrophically lean. So it made sense for our bodies to hold on to every possible calorie. Today, this biological strategy is extremely counterproductive. Our outdated metabolic programming underlies our contemporary epidemic of obesity and fuels pathological processes of degenerative disease such as coronary artery disease, and type II diabetes. (Kurzweil, 2003)

In other words, out go the social context and factors explaining these epidemics. At no moment does Ray Kurzweil question, for example, if contemporary consumer society is to blame. The philosopher James Hughes offers an entirely similar explanation in his *Citizen Cyborg*: 'the basic cause of obesity is that we have bodies designed to spend hours walking around the savanna every day, and brains that find easy access to fats, sugars and carbohydrates irresistible' (Hughes, 2004: 19–20) In short, it is again and again humans and the human body that are blamed, in a radical biologization of contemporary social issues.

The work significantly entitled *Unfit for the Future: The Need for Moral Enhancement*, written by thinkers Ingmar Persson and Julian Savulescu (2012) – a work often cited as the model of a progressive transhumanism that is attentive to the social and moral well-being of humanity – develops a similar reasoning that, this time, blames not the human body, but the human sense of morality from a biological perspective. The authors of this book begin with the observation that humanity has entered a new era where humans face issues and risks on a planetary scale. Humanity has never before acquired, in particular with new technologies, such power to act on itself and on the world with the major potential of destroying itself and the world. For these thinkers, we are not morally competent to overcome the challenges we face. But far from incriminating our social models or political and social choices, the authors attack our so-called archaic psychology to explain this moral deficit:

Even if human beings were psychologically and morally fit for life in those natural conditions in which they have lived during most of the time that the human species has existed, humans have now so radically affected their conditions of living that they might be less psychologically and morally fit for life in these new conditions. These new conditions

consist in societies with an enormous population density and an advanced science and technology, which enable their citizens to exercise an influence that extends all over the world and far into the future. If human beings do not better adapt psychologically and morally to these new conditions, human civilization could be threatened. (Persson and Savulescu, 2010: 660)

Therefore, whether it is the body or human morality in the spotlight, the model of perfectibility that the transhumanists propose is founded, contrary to Enlightenment thinkers, on the biologization of contemporary social problems via a stigmatization of the body and life itself.

This transhumanist stigmatization of the human body leads to a radical depoliticization of human perfectibility. As opposed to Enlightenment philosophy, which opened the horizon for taking political action in the world through an appreciation of citizens' critical autonomy, transhumanism encourages an adaptive and essentially technoscientific view of human perfectibility. There is just one solution in the transhumanist world: adapting through *human engineering*, not political revolt.⁷ Pointing to the deficiency of the human body rather than the limits of a contemporary hyper-consumer society, Ray Kurzweil calls for the complete technical reengineering of the human organism. The first phase, he specifies, 'will be largely biochemical, in the form of drugs and supplements that will block excess caloric absorption and otherwise reprogram metabolic pathways for optimal health' (Kurzweil, 2003). In the second phase, the human body will cohabit with nanobots: 'nanobots in the digestive tract and bloodstream will intelligently extract the precise nutrients we need, call for needed additional nutrients and supplements through our personal wireless local area network, and send the rest of the food we eat on its way to be passed through for elimination' (Kurzweil, 2003). From human heart to brain, the whole body should be subjected, says Kurzweil, to a technoscientific remodelling to be able to meet the requirements of a modern technological world. James Hughes agrees: 'Only safe and cheap genetic and pharmaceutical therapies can successfully stop the deadly world-wide rise of obesity' (2004: 20).

From a similar perspective and after having blamed our biologically deficient morality, Savulescu and Persson call obviously not to politically transform our social living conditions, but to technically increase humans' moral sensibility and empathy. The researchers' solution to current social issues indeed is creating human beings equipped with technically boosted empathy:

[O]ur knowledge of human biology, in particular of genetics and neurobiology, is now beginning to supply us with means of directly affecting the biological or physiological bases of human motivation, e.g. by the use of pharmacological and genetic methods, like genetic selection and engineering. We shall suggest that there are in principle no philosophical or moral objections to the use of such biomedical means of moral enhancement – moral bioenhancement, as we shall call it . . . (Persson and Savulescu, 2012: 2)

It is the same depoliticization of human perfectibility that can be seen at work in the transhumanist approach to current environmental issues. Though some transhumanists agree on the ecological crisis and humans' possible responsibility for it, the solutions

they propose are again symptomatic of the social and political refusal that characterizes the movement. In the evocatively titled article ‘Human Engineering and Climate Change’, several scientists connected with the movement imagine quite seriously resorting to forms of technoscientific modifications of the human species to reduce its environmental footprint and give rise to eco-techno-responsible beings (Liao, Sandberg and Roache, 2012):

In this paper, we explore a new kind of solution to the problem of climate change. We call this kind of solution human engineering. It involves the biomedical modification of humans to make them better at mitigating climate change. We shall argue that human engineering potentially offers an effective means of tackling climate change. (2012: 207)

Among these modifications, the authors imagine the use of pharmacology to make humans more intolerant to meat and the production of smaller-sized humans:

Another more striking example of human engineering is the possibility of making humans smaller. Human ecological footprints are partly correlated with our size. We need a certain amount of food and nutrients to maintain each kilogram of body mass. This means that, other things being equal, the larger one is, the more food and energy one requires. (Liao, Sandberg and Roache, 2012: 208)

The reasoning is as relentless as it is uproarious: reducing the size of human beings is the same as reducing their consumption. This typically transhumanist reasoning absolves capitalist civilization and its ideology of infinite growth of all responsibility for the current climate crisis (see Moore, 2016). Like geoeengineering, which seeks to solve climate change with exclusively technoscientific solutions, transhumanism promotes a true scenario of despair (Bourg and Hess, 2010) by dead-ending the social and political causes of climate warming. A more definitively radical upending of the Enlightenment’s humanistic ideal of human perfectibility – which aimed not to justify the world as it is, but rather to question its social and political relevancy – cannot be imagined.

Conclusion

In his speech at Liberty Plaza Park during Occupy Wall Street, on October 9, 2011, philosopher Slavoj Žižek shed light on a strange division between what is considered possible and what is rejected as unrealistic in contemporary Western societies. He specifies:

Today, the possible and the impossible are distributed in a strange way, both simultaneously exploding into an excess. On the one hand, in the domains of personal freedoms and scientific technology, the impossible is becoming increasingly possible (or so we are told): ‘nothing is impossible,’ . . . we can enhance our physical and psychic abilities through interventions into the genome, right up to the techno-gnostic dream of achieving immortality by transforming our identity into a software program transferable from one piece of hardware to another . . . On the other hand, especially in the domain of social and economic relations, our era sees itself as having reached the age of maturity in which . . . humanity has

abandoned the millenarian utopian dreams and accepted the constraints of reality (read: of capitalist socio-economic reality) with all its attendants impossibilities: *You cannot . . . engage in collective political acts (which necessarily end in totalitarian terror), or cling to the old Welfare State (it makes you non-competitive and leads to economic crisis), or isolate yourself from the global market, and so on.* (Žižek, 2010: 419)

This ideological gap that Slavoj Žižek describes clarifies the reversal of the conception of perfectibility underlying the contemporary enhancement society. By reducing the ideal of perfectibility to its exclusively technoscientific state and to the optimization of life itself (Rose, 2007), transhumanism and current human enhancement culture tend to consummate the rupture with the political culture of the Enlightenment (see also Knorr-Cetina, 2005). What is at stake in the popularization of transhumanist ideals indeed is the critical and political relationship to the world inherited from the humanist ideal of human perfectibility, which underlies more fundamentally the modern project of democratic autonomy.

As philosopher Cornélius Castoriadis states: '[N]ot only does autonomy have nothing to do with any kind of "adaptation" to the state of existing things, it is the opposite, since it precisely means the capacity of questioning this order' (Castoriadis, as quoted in Caumières and Tomès, 2011). Precisely, transhumanism does not stand out by its capacity to question the capitalist order and its central values of performance, surpassing one's limits, growth, and permanent productivity and flexibility. Instead, it naturalizes it completely by instructing us to chemically and biologically adjust. From the transhumanist point of view – and again, even the branch calling for social and progressive commitment – it is always the human being that is unfit for the future; a future which is always naturalized and so taken for granted. Never does transhumanism, whatever its variation, seriously consider that it is this very future – the capitalist future of indefinite growth and technical progress – that is fundamentally maladapted to establishing a truly human society. Actually, the enhanced human is the typical ideal not of an emancipated human, but a human perfectly adapted to the new biotechnological spirit of capitalism. However revolutionary, this biotechnological quest for perfection certainly is not revolutionary in the political and fundamental meaning of the term. Instead, quite to the contrary, transhumanism shows, to borrow Hannah Arendt's words, a 'becoming indifferent to politics, which means renouncing thought and judgment, and the struggle for making the world human again' (Arendt, 1995: 33; translation).

But this struggle 'for making the world human again' now also involves a deep rethinking of the humanist conception of human perfectibility inherited from the Enlightenment, particularly its element of technoscientific 'rational mastery'. Indeed, the modern project of autonomy cannot be pursued on an anthropocentric basis of removing humans from nature and the living world. Claude Lévi-Strauss forewarned, following in Jean-Jacques Rousseau's footsteps,

We started by cutting man off from nature and establishing him in an absolute reign. We believed ourselves to have thus erased his most unassailable characteristic: that he is first a living being. Remaining blind to this common property, we gave free rein to all excesses. (Lévi-Strauss, 1973: 53)

Faced with transhumanist perspectives and the growing bioeconomic exploitation of the living world (see Cooper, 2008; Lafontaine, 2014), we can no longer conceal the fundamentally living, sensitive, and bodily dimension of the human condition (e.g. Pelluchon, 2015). Transhumanism is an exemplary manifestation of contemporary technoscientific hubris, calling for this global awareness that is constitutive of the Anthropocene Age (see Bonneuil and Fressoz, 2016; Delanty and Mota, 2017). As Nikolas Rose points out: ‘Our very biological life itself has entered the domain of decision and choice; these questions of judgment have become inescapable. We have entered the age of vital politics, of somatic ethics, and of biological responsibility’ (2007: 40). Conceiving of human perfectibility and the modern project of autonomy other than in opposition to the natural world⁸ is therefore a major challenge for the human and social sciences and, more broadly, for contemporary Western societies, in order to fully respond to the political challenge raised by transhumanism.

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Notes

1. The authors of this European report on human enhancement indicate:

The umbrella term ‘human enhancement’ refers to a wide range of existing, emerging and visionary technologies, including pharmaceutical products: neuroimplants that provide replacement sight or other artificial senses, drugs that boost brain power, human germline engineering and existing reproductive technologies, nutritional supplements, new brain stimulation technologies to alleviate suffering and control mood, gene doping in sports, cosmetic surgery, growth hormones for children of short stature, anti-ageing medication, and highly sophisticated prosthetic applications that may provide specialized sensory input or mechanical output. All these technologies signal the blurring of boundaries between restorative therapy and interventions that aim to bring about improvements extending beyond such therapy. (Coenen et al., 2009: 6)

2. This is the question philosopher Jürgen Habermas also asks in an interview:

In American philosophy departments, my colleagues are already contemplating the predictably unequal distribution of eugenic technologies given the high costs of investments and prices, since this is a question that will soon be asked. They are applying all of political theory to the problems that will occur in the future around the distribution of these products, the next day they are available. But they ask these questions without first seriously asking whether this

‘enhancement’ of humans is desirable. (Habermas, cited in Atlan and Pol-Droit, 2012: 486; translation)

3. Here, we distinguish ‘transhumanism’ from the philosophical approaches often grouped under the general term of ‘posthumanism’. Posthumanism indeed encompasses a heterogeneous collection of philosophical perspectives that, from new materialism to contemporary ecocentric perspectives, question many premises of philosophical modernity, starting with an anthropocentric worldview (see Wolfe, 2009; Braidotti, 2013). Although there can be some cross-over between transhumanism and certain posthumanist approaches (see Vandenberghe, 2006), only the ideas defended by the transhumanist movement (the main finality of which is to technoscientifically enhance the human being) are addressed and discussed in this article.
4. Transhumanism is also exported to politics (Benedikter and Siepmann, 2016). Since 2014, transhumanism has had an official political party in the United States, the Transhumanist Party (transhumanistparty.org), created by writer and philosopher Zoltan Istvan, who presented his candidature in the 2016 elections to actively promote transhumanist ideas among Americans: ‘The goal of the Transhumanist Party and my personal goal is to create a transhumanist-minded world. We want everyone to embrace transhumanism. We want everyone to improve themselves with technology’ (Istvan, cited in Guerra, 2015).
5. Political philosopher Langdon Winner reminds us:

The key premise [of humanism] is that humans are fundamentally social beings whose development depends upon favorable conditions for forming social bonds and sentiments. From this perspective, the path to improvement for humanity involves changing institutions—laws, governments, workplaces, dwellings, schools, and the like—in ways that will nurture the potential of individuals and the groups of which they are members. Real creativity in this regard comes not so much in operating on particular atomistic individuals, but in shaping the rule-guided frameworks and material structures of community life. Such were the hopes of Condorcet, Rousseau, Godwin, Paine, Saint-Simon, Fourier, Owen, Comte, Marx, Kropotkin, Goldman, Dewey, and a host of others who believed that the essentially social character of men and women offered the most promising prospects for positive change. (Winner, 2002)

6. Philosopher Mickael Hauskeller talks of the transhumanization of culture to designate the action by which transhumanists reframe human capacities (emotional, cognitive, physical, etc.) as deficiencies requiring biomedical enhancement (see Hauskeller, 2016: 121–44).
7. Norbert Wiener, the father of cybernetics, the underpinning of contemporary discourse on the posthuman (see Lafontaine, 2007), has already expressed very clearly this form of technoscientific resignation that underlies today’s transhumanist discourse: ‘We have modified our environment so radically that we must now modify ourselves to live up to scale with this new environment’ (Wiener, [1954] 1988: 56).
8. In an article dedicated to Castoriadis’ project of autonomy and its limitations, particularly its environmental shortfalls, Suzi Adams points out:

Autonomy has to take account of something other than itself and is not purely ‘self-instituting; in this case, it must also take account of our ‘kinship with stones and trees’. To raise ‘the ecological world’ as a central imaginary signification would mean to bring into relief not only the interpretative aspect of social imaginary significations per se, but also the complex interaction and interpretation of the human encounter with, and place within, the natural world. (Adams, 2012: 325)

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